Drilling Fluids Technology in Oil & Gas

Course general description:

This five-day course in Houston equips engineers and field personnel with the knowledge of drilling fluids technology. It combines theoretical and practical learning, including hands-on laboratory exercises. The course emphasizes the crucial role of drilling fluids in successful well drilling operations, covering both basic and advanced concepts applicable to various well complexities.

Audience:

This course is designed for:

1. Drilling fluids engineers
2. Mud engineers
3. Drilling engineers
4. Well site supervisors
5. Technical support personnel
6. Laboratory technicians.

Course objectives:

By end of the course participants will:

1. Master drilling fluid composition and properties
2. Develop expertise in mud testing procedures
3. Learn fluid system maintenance and treatment
4. Understand wellbore stability management
5. Apply problem-solving techniques for common issues
6. Execute quality control procedures.

Course duration:

5 days

Course location:

Cairo-Dubai-Istanbul

Course contents:

Day-1

- Pretest
- Overview of drilling fluid functions and system types.
- Rheological properties and water-based mud chemistry.
- Fundamentals of clay chemistry and filtration properties.
- Introduction to oil-based and synthetic-based fluids.
- Discussion on environmental considerations for drilling fluids.

Day-2

- Techniques for mud balance, density control, and viscosity measurement.
- Overview of rheology testing equipment and API filtration testing.
- Solids content and chemical analysis methods.
- Quality control procedures and interpretation of results.
- Standards for reporting mud testing and analysis outcomes.

Day-3

- Operation of solids control equipment like shale shakers and hydrocyclones.
- Chemical treatments for pH control and lost circulation prevention.
- Strategies to maintain wellbore stability and prevent formation damage.
- Solutions for stuck pipe issues during drilling operations.

Day-4

- HPHT fluid systems, reservoir fluids, and completion fluids.
- Identification and resolution of common drilling fluid problems.
- Diagnostic procedures and treatment strategies.
- Hydraulics optimization, ECD management, and cost control.

Day-5

- Review of case studies to consolidate learning.
- Final assessment to evaluate participants' understanding.
- Course evaluation and feedback session

Methodology:

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

Course code: (TDRL002)